Department of the Navy
Proposed Plan for OU-5
No Further Action for Site 8

Naval Air Warfare Center
Warminster, Pennsylvania

AUGUST 1999

NAVY ANNOUNCES PROPOSED PLAN

The Department of the Navy has completed a Remedial Investigation (RI) for Operable Unit 5 (OU-5) addressing soil, sediment and surface water associated with Site 8 at the Naval Air Warfare Center (NAWC or "Site") in Warminster, Pennsylvania. This RI has been completed as part of the Navy's Installation Restoration Program (IRP) and the Superfund Remedial Program.

The purpose of this RI was to evaluate the nature and extent of any contamination associated with Site 8 at NAWC. This Proposed Plan summarizes the findings of the RI report and proposes that no further action is necessary to address soil, sediment and surface water associated with Site 8. This Proposed Plan also provides a rationale for this proposal. In addition, the Proposed Plan explains how the public can participate in the decision-making process and provides addresses and telephone numbers for the appropriate Navy contacts.

NOTE: A glossary of relevant technical and regulatory terms is provided at the end of this Proposed Plan. These terms are indicated in **boldface** within the Proposed Plan.

This document is issued by the Navy, the lead agency for IRP and Superfund activities at the Site, and by EPA, the support agency for Superfund actions. The Navy and EPA will issue a final decision regarding the disposition of Site 8 (OU-5) after the public comment period has ended and the comments submitted during this time have been reviewed and considered.

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Sections 113 (k), 117(a), and 121(f) of the **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA, commonly referred to as the Superfund Law), as amended by the Superfund Amendments and Reauthorization Act. This document summarizes information that can be found in greater detail in the **Remedial Investigation** (RI) report of OU-5 and other Site documents contained in the **administrative record** file for this Site. The Navy invites the public to review these and to comment on the Proposed Plan during the comment period. The administrative record file, which supports this Proposed Plan, is available for review at the Caretaker Site Office trailer, 860 Flamingo Alley, Warminster, Pennsylvania 18974 (215) 441-7634 Hours; Monday Friday, 9 a.m. - 4 p.m. or at the Bucks County Library 150 South Pine Street Doylestown, Pennsylvania 18901 (215) 348-9081 Hours: Monday - Thursday, 9 a.m. - 9 p.m. Friday, 9 a.m - 6 p.m. Saturday, 9 a m. - 5 p.m.

A final decision regarding the disposition of Site 8 will be documented in a Record of Decision (ROD) which will be issued after all public comments are considered. The ROD will be placed in the administrative record file for review by the public.

This is the fourth Proposed Plan issued by the Navy for the Site. The first Proposed Plan was issued on April 26, 1993, and addressed Operable Unit 1 (OU-1), which included contaminated groundwater in overburden and shallow bedrock attributable to Area A and Area B at NAWC. Subsequent to the issuance of the Proposed Plan for OU-1, the Navy and EPA conducted a Superfund Removal Action, providing water treatment system and public water connections to residences in the vicinity of NAWC. This Removal Action was designated as

Operable Unit 2 (OU-2). Due to the time-critical nature of this Removal Action, a Proposed Plan was not issued for OU-2. The second Proposed Plan was issued on August 19, 1994, and addressed Operable Unit 3 (OU-3), which included contaminated groundwater attributable to Area C at NAWC. Since the issuance of the Proposed Plan and subsequent Records of Decisions for OU-1 and OU-3, a groundwater treatment plant has been constructed within Area A and the cleanup of contaminated groundwater attributable to both Area A and Area C has begun. The third Proposed Plan was issued on June 5, 1997, and addressed contaminated groundwater attributable to Area D at NAWC, or Operable Unit 4 (OU-4) A Record of Decision for OU-4 was issued and cleanup of contaminated groundwater attributable to Area D has also been initiated.

SITE BACKGROUND

NAWC is a 824-acre facility located in Warminster Township, Northampton Township and Ivyland Borough, Bucks County, Pennsylvania (see Figure 1 for Site Location Map). As a result of the Base Realignment and Closure Act (BRAC), NAWC ceased operations on 30 September 1996. The majority of NAWC, including Site 8, is being transferred to the private sector.

The facility lies in a populated suburban area surrounded by private homes, various commercial and industrial activities, and a golf course. On-site areas include various buildings and other complexes connected by paved roads, the runway and ramp area, mowed fields, and a small wooded area.

Commissioned in 1944, the facility's main function was research, development, testing, and evaluation for naval aircraft systems. NAWC also conducted studies in anti-submarine warfare systems and software development. Historically, wastes were generated during aircraft maintenance and repair, pest control, fire-fighting training, machine and plating shop operations, spray painting and various materials research and testing activities in laboratories. These wastes included paints, solvents, sludges from industrial wastewater treatment, and waste oils that were disposed in several pits, trenches, and landfills throughout the facility property. NAWC was listed on the Superfund **National Priorities List** in 1989. This list includes sites where uncontrolled hazardous substance

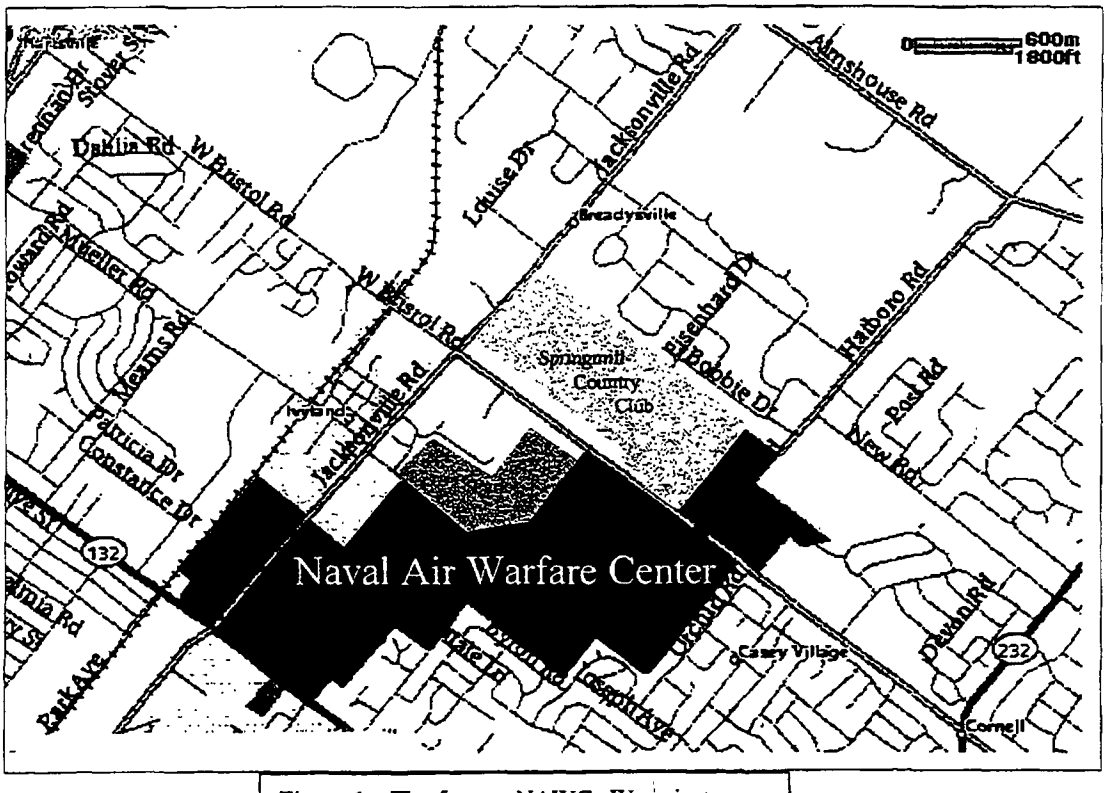

Figure 1. The former NAWC, Warminster,

releases present the most significant potential threats to human health and the environment. Areas reported by the Navy to have been potentially used for disposal of hazardous substances include eight locations covering more than 7 acres. These locations include the following:

Three waste disposal pits (sites 1, 3, and 6)

Two sludge disposal pit areas (sites 2 and 7)

Two landfills (sites 4 and 5)

Also included among the reported waste disposal locations is Site 8, which was used as a fire-training area from approximately 1961 to 1988. The fire training activities were conducted at the Northeast end of the old runway, located in Area C (See Figure 2). These activities involved pouring contaminated jet fuels onto a runway area, contained by berms. The fuel was then ignited and extinguished to simulate fire-fighting procedures. In addition, an area of the runway immediately south of the fire training area was used to test the resistance of aviation suits to fire. This area consisted of a corrugated metal building (Structure S1) where flight suits were passed through flames to test the durability of the suits. While not initially reported as a disposal site, this former location of this test area has now been considered part of Site 8 (See Figure 3 for a map of site 8).

To date, potential and known hazardous substance releases at NAWC Warminster have been addressed under CERCLA by a RI, which has been conducted in three phases. The Phase I RI was initiated in late 1988 and was completed on September 11,1990, with the release of the Phase I (or Stage 1) RI report. Phase I involved mapping **volatile organic compounds** (VOCs) in soil gas and detecting buried materials through electromagnetic surveys. The eight waste disposal locations were also investigated through soil borings and installation and sampling of groundwater monitoring wells. Test pits were excavated, nearby wells were inventoried, and a bedrock fracture-trace analysis was conducted.

The Phase II RI began at the end of 1991 and included installing additional monitoring wells, sampling and analyzing groundwater, and evaluating aquifer characteristics by performing hydraulic tests. Both the Phase I and Phase II RI

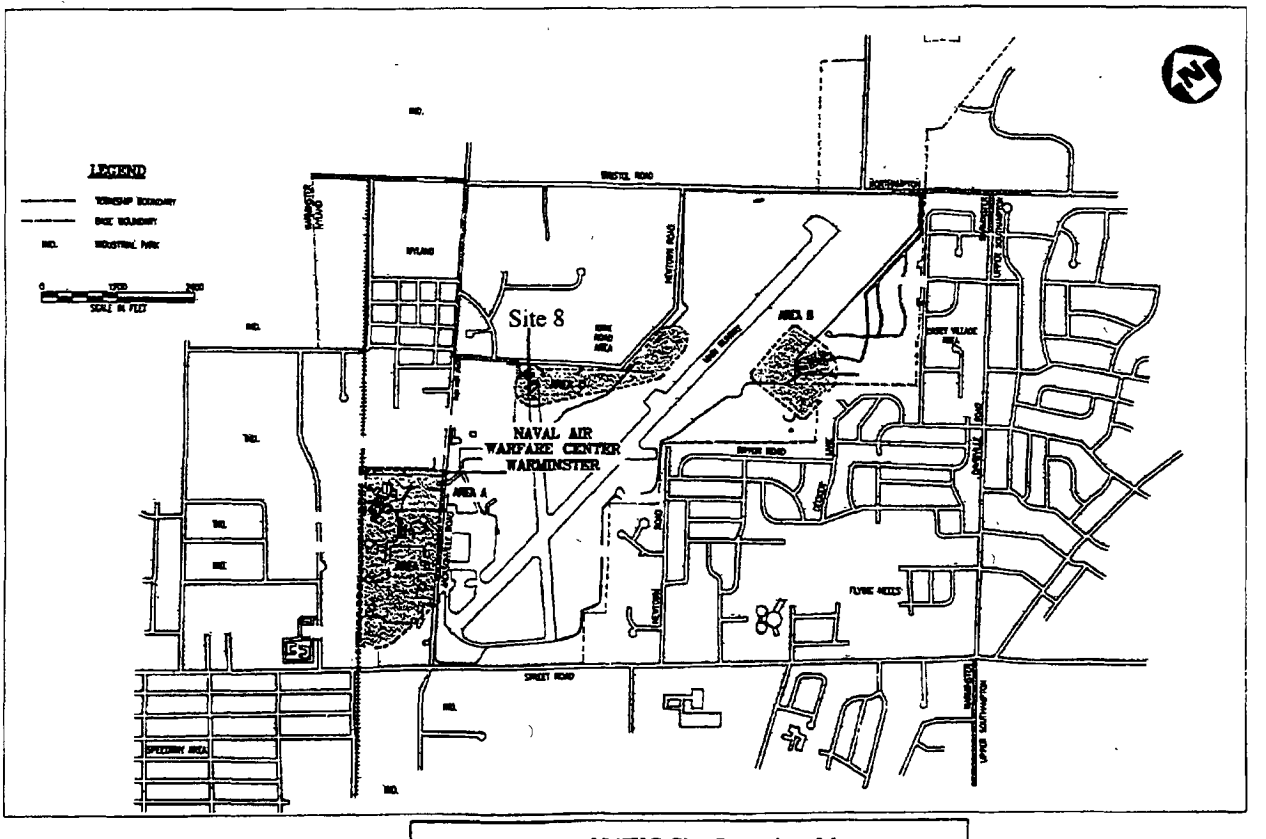

Figure 2. NAWC Site Location Map

investigated the nature and extent of groundwater contamination within the vicinity of Sites 1, 2, and 3 (Area A), Sites 5, 6, and 7 (Area B) and Sites 4 and 8 (Area C). See Figure 2 for an area layout of the former NAWC.

In 1993, the Navy began work on a Phase III RI which included further investigation of the nature and extent of contaminated groundwater attributable to Areas A, B and C, as well as potentially contaminated soils, buried wastes and surface water associated with these areas. During the Phase III RI, it became apparent that hazardous substances have been released to groundwater underlying Area D and investigations of this area were also initiated.

In response to the findings of the Phase III RI work, the pumping and treatment of Area C groundwater was initiated in 1996. Underground piping to convey groundwater from Area C to the treatment plant runs directly adjacent to Site 8. Part of the soil excavated during the installation of this piping currently lies in a pile immediately north of the end of the runway. This pile will be removed in the near future.

The draft Phase III RI was released for by the Navy in November 1996. After considering the findings of the report, the Navy conducted further soil sampling at Site 8.

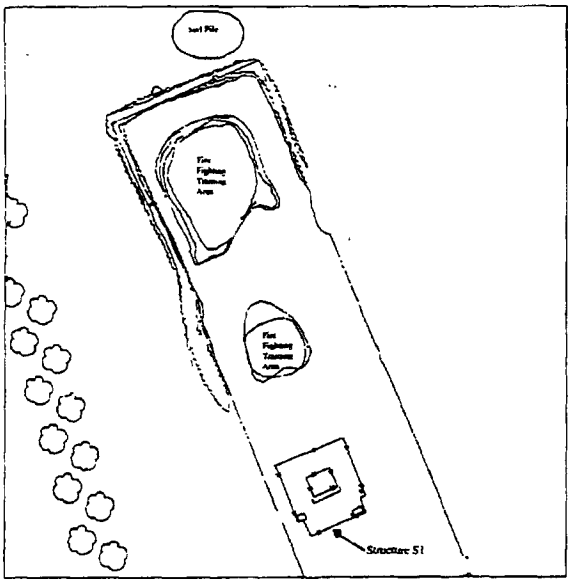

Figure 3. Location Map for Site 8

The nature and results of all RI work performed at Site 8, including Phase III and post-Phase III RI work, is either described or summarized in the Final RI report for OU-5 issued by the Navy in August 1999.

Based on the findings of RI work referenced above, the Navy determined that lead levels in certain surface soil at Site 8 presented an unacceptable risk to human health. The soils of concern were located immediately next to the western side of the runway adjacent to Structure S1, the former flight suit test area. In response, the Navy completed a removal action at Site 8, eliminating the unacceptable risk associated with the lead-contaminated soils. Due to the time-critical nature of this response, there was no proposed plan issued. This action included the excavation and removal of soils containing the elevated lead levels and subsequent disposal in an off-base landfill. Sampling was conducted after the action to ensure removal of the soil of concern.

The RI report for OU-5 characterizes the nature of the site prior to and after the removal action. The primary findings of the RI with regard to OU-5 after the removal action were as follows:

- The removal action significantly reduced lead levels in soils at Site 8.

- Soil sampling results suggest that Site 8 is not a past or present source of Area C groundwater contamination.

- Organic compounds detected in Site 8 soils at a significant frequency and concentration were polynuclear aromatic hydrocarbon (PAH) compounds. PAHs are commonly associated with burning activities.

- With the exception of the lead concentrations addressed by the removal action, metals were not detected at levels above background at a significant frequency.

- Concentrations of organics and metals in surface water or sediment associated with Site 8 were found to be only slightly above background levels.

- Low levels of compounds commonly associated with fuels were detected in both surface and subsurface soils at Site 8.

SUMMARY OF SITE RISKS

As part of the final RI, a risk assessment was conducted with available data to estimate the potential risks to human heath posed soils, sediments and surface water associated with Site 8. In the case of soils, the risk assessment addressed conditions after the performance of the removal action. To assess these risks, the potential exposure scenarios identified below were assumed.

- Ingestion, inhalation and dermal contact with soils.
- Ingestion and dermal contact with surface water and sediment.

Potential human health risks are categorized as **carcinogenic or noncarcinogenic.** A hypothetical carcinogenic risk increase from exposure should not exceed a risk range from $1 X 10^{-6}$ (an increase of one case of cancer for one million people exposed) to $1 X 10^{-4}$ (one additional case per 10,000 people exposed). Noncarcinogenic risks are estimated utilizing Hazard Indices (HI), where an HI exceeding one is considered an unacceptable health risk. In addition, health risks posed by lead are assessed by estimating the percentage of child residents who may have a lead level of 10 micrograms per deciliter (ug/dl) or greater. This percentage is estimated by applying an Integrated Exposure and Uptake Biokinetic (IEUBK) Model. An estimate of 5% or less is considered acceptable.

The risk assessment in the final RI found the maximum carcinogenic risk posed by soils at Site 8 would occur if one assumed a lifetime of exposure to surface soils as a resident. In this case, the total incremental carcinogenic nsks was determined to be $2.94 x 10^{-5}$. This risk falls within the acceptable range of $1 x 10^{-6}$ to $1 x 10^{-4}$, and may be considered acceptable. In assessing non-carcinogenic risks posed by soil, the highest HI identified was 0.6. In this case, exposure of a residential child to surface soil was assumed. This value falls below the acceptable level of 1.0. The assessment of risk posed by lead in soils found that the estimated percentage of children with a blood level above 10 ug/dl was 0.35%, which is below the protective level of 5%.

The risk assessment for sediment in surface water associated with Site 8 found the recreational adolescents would incur an incremental carcinogenic risk of $1.25 x 10^{-7}$. An HI of 0.02 was estimated in the case of recreational adolescent contact with sediments. Each value falls within the respective acceptable range. The risk assessment did not identify any carcinogenic risk associated with surface water, while the assessment of non-carcinogenic risk estimated an HI of 0.001 for recreational adolescents. These findings indicate that sediment and surface water associated with Site 8 do not present a threat to human health.

An ecological risk assessment was also conducted as part of the RI to assess potential risks posed by sediments and surface water to the environment. The ERA identified no unacceptable risk to the environment.

SUMMARY OF THE PROPOSED REMEDY

The results of the risk assessment indicate that, based on available information, Site 8 soils, sediment, and surface water associated with Site 8 do not present an unacceptable risk to human health and the environment. In this case, the Navy, with the support of EPA, proposes a remedy of No Action. There are no costs associated with this proposed remedy. Based on available information, the Navy and EPA believe that this remedy would be protective of human health and the environment and would be cost-effective.

THE COMMUNITY ROLE IN THE SELECTION PROCESS

The Navy solicits written comments from the community on the preferred alternative for OU-5 and the other alternatives for OU-5 identified in this Proposed Plan. The Navy has set a public comment period from August 20, 1999 through September 19, 1999 to encourage public participation in the remedy selection process for OU-5.

A public meeting has been scheduled for Wednesday evening, September 8th, at 7:00 p.m. in the Marine Corps Barracks Conference

Note:
The comment period has been changed from August 23 to September 22, 1999.

Room. The Marine Corps. Barracks is located across Jacksonville Road from the former Naval Air Warfare Center.

Comments from the public meeting and the proposed plan will be summarized and responses will be provided in the Responsiveness Summary section of the ROD. The ROD is the document that will present the selected remedy. To obtain further information, contact Mr. Tom Ames, BRAC Environmental Coordinator, at 215-441-1112, or send written comments to:

Mr. Tom Ames
Caretaker Site Office
P.O. Box 2609
Warminster, PA 18974-0061

Please note that all comments must be *submitted and postmarked on or before* September 19, 1999.

GLOSSARY

Administrative Record – Section 113K of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA) requires the establishment of an administrative record which forms the basis for the selection of a response action. The administrative record should include the final documents which are a part of the Department of the Navy's (DON's) decision making process.

Carcinogenic – Cancer producing.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) – A federal law passed in 1980 and modified by the Superfund Amendments and Reauthorization Act (SARA) of 1986. The Acts created a special tax that goes into a Trust Fund, commonly known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. Under this program, EPA either can pay for a clean up when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work; or can take legal action to force the parties responsible for site contamination to clean up the sit or pay back the federal government for the cost of the cleanup.

National Priorities List (NPL) – EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action, under Superfund. A site must be on NPL to receive money from the Trust Fund for remedial action. The list is based primarily on the score a site receives from the Hazard Ranking System. EPA is required to update the NPL at least once a year.

Remedial Investigation (RI) – An in-depth study designed to gather the data necessary to determine the nature and extent of contamination at a Superfund site; establish criteria for cleaning up the site; Identify preliminary alternatives for remedial actions; support the technical and cost analyses of the alternatives. The remedial investigation is usually done with the feasibility study. Together they are usually referred to as the RI / FS.

Volatile Organic Compound (VOC) – Any organic compound which participates in atmospheric photochemical reactions except for those designated by the EPA Administrator as having negligible photochemical reactivity.

MAILING LIST

If you did not receive this Proposed Plan in the mail and wish to be placed on the mailing list for future information pertaining to this site, please fill out, detach, and mail this form to

Mr. Thomas C. Ames
BRAC Environmental Coordinator
Caretaker Site Office
P.O. Box 2609
Warminster, Pennsylvania 18974-0061

Name _____ Affiliation _____

Address _____ Phone ( ) _____

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